THE ROLE OF ENTREPRENEURSHIP EDUCATION IN THE HEALTH CARE SECTOR ON ESTONIA'S EXAMPLE

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Abstract

The health care sector is one of the most prominent economy sectors in the European Union. Demand for health care services is growing due to longer life expectancies and changed lifestyles. Although a great share of health care professionals are employees, many also operate as entrepreneurs. Increasing the share of entrepreneurs in the health care sector is one way of coping with an increased demand for health care services, reducing the pressure on state budget and ensuring a sustainable health care system.
This article views the role of entrepreneurship education in the health care sector on Estonia's example. The article starts out with an overview of the current state of affairs in Estonia's health care sector. It then proceeds to view how various subgroups of health care professionals in Estonia relate to enterprise and describes the role of entrepreneurship education in the training of health care specialists.

Introduction

The health care sector is one of the most prominent economy sectors in the European Union, employing around ten percent of the EU's workforce (EC 2008b). Demand for health care services is growing. On the one hand, it is related to an increased average life expectancy. According to the European Commission, the amount of 65-year olds and older will grow by 70% by 2050 in the EU (EC 2009). This also means that there will be more people with chronic diseases or disabilities in need of long-term care. Changes in the structure of the modern family also increase demand for formal care services.

On the other hand, increased welfare also raises demand for health care services. People can spend their money on services that they could not afford in the past. Technological development and overabundance and rapid spread of information have changed the nature of health care services.

An outlook for a longer and wealthier life together with persistent national health promotion campaigns have considerably increased the health awareness of citizens in developed countries. In addition to improved health behaviour, health awareness also means higher expectations to the medical system and prevention, diagnostics and treatment of health problems. In other words, not only the elderly but the entire population need more health care services.

Such a situation poses major challenges to European health care systems: they need to satisfy an ever-growing demand for health care services while the amount of working-age population is decreasing and health care costs constitute an ever-greater share of state budgets. There is a serious debate on how to adapt health care systems so that they would respond to the needs of the population and remain sustainable. We need to bear in mind that ageing population also means aging health care workers. We will need a sufficient amount of young specialists when the present health care workers retire. In order to train new specialists we will need to evaluate which skills they need considering social changes, ageing population, people's increased mobility and rapid technological development.

Health care used to refer to treatment of health problems. Today the health care sector is seen, more holistically, to encompass the entire health care and medical care system for health

promotion, prevention of diseases and medical treatment. Due to lack of resources the emphasis is shifting more to promoting health and active ageing. The importance of public health is increasing and so is the role of health promotion specialists. Scientific and technological development gives birth to new professions in the fields of biomedicine, gene technology and e-health.

Increased demand for health care services also means opportunities for job-creation and enterprise. Although a great share of health care professionals are employees, several specialists (e.g. family doctors, dentists, psychotherapists and psychologists) often operate as entrepreneurs. Enterprise is seen as an important driver for economic growth and innovation in the EU. That is why the EC is committed to supporting and developing entrepreneurship in all fields of economy, including the health care sector. Entrepreneurship education is topical in all EU member states (EC 2006). Increasing the share of entrepreneurs in the health care sector is seen as one way of coping with an increased demand for health care services, reducing the pressure on state budget and ensuring sustainable health care systems.

This article views the role of entrepreneurship education in the health care sector on Estonia's example. The article starts out with an overview of the current state of affairs in Estonia's health care sector. It then proceeds to view how various subgroups of health care workers in Estonia relate to enterprise and describes the current situation of entrepreneurship education in the training of health care specialists.

Health sector in Estonia

After several rounds of reforms, Estonia's health care system developed in its present form by 2002. The health care system is steered by the Ministry of Social Affairs (MSA). The organisational structure of the health care system is complex, starting with several institutions governed by the MSA (State Agency of Medicines, Health Board, National Institute for Health Development, Health Protection Inspectorate), public institutions (Estonian Health Insurance Fund), hospitals and primary health care institutions that operate according to the private law, and ending with a number of NGOs and private associations.

Estonia's health care system is mainly funded from the social tax, relying on the principle of solidarity. Social tax is collected as an earmarked health insurance tax and accounts to almost two thirds of the total health care costs. Private sector spending accounts to almost a quarter of all health care costs, mainly through cost-sharing upon purchasing medicines and dental care services.

The main buyer of health care services for the insured is the Estonian Health Insurance Fund. The health insurance system is obligatory and covers 94% of the population (Eesti Haigekassa 2011). The health insurance tax is part of the social tax and is tied to employment. At the same time, almost half of the insured population (children and pensioners) are exempt from the tax, which in a longer run may pose a threat to the sustainability of the funding of the health care system. As the narrow revenue basis is mainly tied with salaries, employment has a direct impact on how well the health care system works.

Estonia has a well-developed infrastructure of general medical care relying on family doctors and nurses. General medical care is supported by emergency medical care available all over Estonia. High-tech medical aid is available in designated health care institutions.

Some of the biggest problems for the population are long waiting lists in out-patient care and the overall availability of health care services (incl. home nursing, physiotherapy) due to a restricted range of primary care services and lack of qualified specialists especially in the periphery (Koppel 2008).

The provision of health care services is almost entirely decentralised. The law regulates four types of health care services: general medical care provided by family doctors, emergency medical care, specialised medical care and nursing care. All service providers have the legal right to operate according to the private law. Most hospitals are either public limited companied owned by local municipalities or foundations owned by the state, local municipalities or other public institutions. Most out-patient care providers are privately owned. All family doctors are either entrepreneurs (self-employed) or employees in companies (owned by family doctors).

Private companies play a bigger role in providing most of the out-patient specialised care services, such as gynaecologic, psychiatric and orthopaedic services. They also provide dental care and plastic surgery.

In the public health sector the picture is fragmented. Most organisations are non-profitable or foundations, mainly project-based. Although several organisations provide similar services to similar target groups (e.g. HIV/AIDS related services), collaboration and coordination are poor. (Koppel 2008)

A number of universities and other R&D institutions are involved in health care R&D. There are four competence centres in Estonia consisting of high-level research groups that focus on health care. Funding comes from the EU's structural funds. The largest hospitals also do R&D. In 2001 the government founded the Estonian Genome Centre to foster gene research, gather data on health and hereditary factors of the population and apply the results of gene research to improve public health. In 2007 the Estonian Genome Centre was joined with the University of Tartu. Currently the Genome Centre stores around 51,500 human gene samples that are used in international research projects (Eesti Geenivaramu 2011).

Estonia has made remarkable progress in e-health. According to the concept of e-health, all and any information on a patient needs to be centrally administrated and available to the patient or to medical staff upon a relevant request. IT-development started already in the beginning of the 1990s. In 2009 the Estonian Health Information System (EHES) was launched with a supportive legal framework. EHES stands on four pillars – electronic medical history, electronic registration, electronic image depository and electronic prescriptions. With its service-based structure and standardised database the system is unique in the whole world. It enables to provide new digital health care services to both citizens and service providers. (Eesti Haigekassa 2011)

Human resources are a weak point for Estonia. Compared to the EU's average, Estonia has a relatively small number of health care professionals, both in absolute and relative terms. In 2009 there were 4,274 medical doctors in Estonia, i.e. 319 doctors per 100,000 citizens. There were almost twice as many nurses – 645 nurses per 100,000 citizens. (Aaviksoo 2010)

It is important to take a look at age aspect. In the 1990s, universities lowered admission quotas for doctor and nurse students. This together with the outflow of medical staff from Estonia has created a situation where there is a considerable disproportion between retiring medical workers and those needed to replace them. Very many nurses change careers (e.g.

start working in the welfare services). Also, nursing is not very popular and there has been a sharp fall in the number of nurse students. Despite all efforts made (including more funding) the amount of new nurses is not sufficient. (Aaviksoo 2010)

In Estonia, the term *health care professional* mostly refers to the health care professionals listed the Health Care Services Organisation Act, i.e. medical doctors, dentists, nurses and midwives registered in the Estonian Health Board (Tervishoiuteenuste korraldamise seadus 2001). Public health specialists are often discarded. The same applies to relatively new interdisciplinary health care professions that have emerged thanks to the rapid scientific and technological development in the field of biomedicine, gene technology and e-health. The health care system should be viewed more integrally. Different fields such as clinical medicine, public health, biomedicine and e-health should be viewed together as they are tightly interlinked (Tartu Ülikool 2010). Unfortunately Estonia is lacking a thorough analysis on which and how many health care specialists are needed.

Scarcity of qualified health care professionals may seriously hinder Estonia's development in mid-term. Another problem is how to ensure sustainable funding of the health care system in the light of the ageing population. The health care system needs more human and financial resources. One solution would be to facilitate enterprise in the health care sector and thereby increase both human and financial resources.

Opportunities for Enterprise in Estonia's health care sector

According to Statistics Estonia, 1,014 companies operated in the health care sector in 2008, which is 1.9% of the total number of enterprises in Estonia. In 2003-2007 the number of enterprises in the health care sector increased ca 40%, with an average growth rate of 8.8% a year. This means that new companies keep emerging. In 2008 the health care and social welfare sectors produced 3.3% of the GDP and employed 4.7% of the workforce. The sectors' contribution to the sales revenue and profit of Estonian enterprises was rather marginal, respectively 0.8% and 0.6%. (Aaviksoo 2010)

Considering the ongoing social processes, Estonia's small size and scarcity of human and material resources, it is important to increase the role of knowledge based economy in Estonia to ensure sustainable economic development (EC 2007). Health care is clearly a science and technology intensive field of economy, and it is therefore crucial that research and development results on health care be transferred to enterprise as quickly as possible. The importance of R&D in the health care sector is emphasised also in the Estonian R&D and innovation strategy for 2007-2013 "Knowledge based Estonia". (Haridus- ja Teadusministeerium 2007).

Because the domestic market is small, Estonia needs to develop new industrial and service sectors with strong export based growth potential and added value to boost its economy. Looking at the overall structure of Estonia's health care system, the sector's advanced technological resources, skilled workforce and price advantages that will not disappear any time soon, Estonia has quite a potential to export health care services.

According to a survey on the export opportunities of health and wellness services in Estonia conducted by the Estonian Development Fund, the following fields have strong export potential: laboratory diagnostics, medical examinations, dental care, facial and jaw

surgery, sanatoriums, plastic surgery, orthopaedics, radiology, infertility treatment and eye surgery (Aaviksoo 2010).

Export potential also lies in such interdisciplinary fields as biomedicine and e-health.

When looking at the investments made into and versatile uses of biotechnology worldwide, we can predict that in a couple of decades, biotechnology will be the base technology implemented in virtually all fields of economy and life, including medicine. The biggest beneficiary of biotechnology has, for decades, been the pharmaceutical industry whose development is now mainly affected by increased health care costs, emergence of personal medicine and increased costs in developing new medicines. (Kukk, Truve 2008)

Although Estonia lacks a pharmaceutical industry, most domestic biotechnology companies still focus on biomedicine and work on diagnostics and drug development, usually as subcontractors to external customers. Usually these companies are small, with less than 50 employees. However, these small enterprises have very high R&D potential. As Estonian biomedicine companies are still taking baby steps, the number of patent applications is small and business models usually rely on the provision of services.

According to the Estonian R&D and innovation strategy for 2007-2013, biotechnology is one of the three priority technologies supported by the state, which also means that most of the means obtained from the EU structural funds are directed into biotechnology. For example, four out of Estonia's eight technology development centres (TDC) – these are research institutions devoted to long term cooperation with universities and enterprises and funded by the European Regional Development Fund – are related to biotechnology. The aim of TDC-s is to boost Estonia's economy via immediate implementation of scientific research results in enterprise.

The problem is that most state funding goes to fundamental and applied research whereas product development, marketing and sales promotion get only limited resources. A survey conducted among the CEO-s of biotechnology companies showed that a crucial bottleneck is weak commercialisation of new technologies and lack of competence for international marketing, sales and technology management. CEO-s think that university-bred biotechnologists should acquire additional skills such as bookkeeping, marketing, project management, intellectual property rights, quality management, etc. Company leaders also need additional training on business management. (Kukk, Truve 2008)

The other field mentioned above, e-health, unites two priority development areas in Estonia – R&D on health care and ITC. E-health has great development potential both on the domestic and external market: digital health care services are seen in Europe as one of the key solutions for curbing the growing health care costs related to ageing population and increasing numbers of people with chronic diseases. According to the EC's guideline document "Digital Agenda for Europe 2020", digital health care services help to give citizens more say in decisions related to their health, improve treatment quality, reduce treatment errors and make the health care system more efficient and safer (EC 2010b). In its communication "Telemedicine for the benefit of patient, healthcare systems and society" (EC 2008a), the European Commission encourages the member states to make extensive use of telemedicine.

The Estonian Health Information System launched in 2009 with a supportive legal framework is an excellent basis for developing and implementing new digital health care services for the benefit of public health. Some Estonian enterprises have already managed to

successfully export their e-services. One example is Raintree Estonia OÜ that develops management software for medical institutions covering different branches (physiotherapy, bariatrics, paediatrics, radiology and oncology). The company has over 2,000 customers in the USA and Canada (Raintree Estonia 2011).

Directions of entrepreneurship education in Estonia

During the last decades, entrepreneurship education has received more and more attention worldwide. It is partly so because of the discovery that there is a positive correlation between entrepreneurship and economic growth (EC 2006). Moreover, social changes have altered the nature of working. Employees have more independence and freedom of decision in performing their tasks and thanks to project based and tele-work the daily activities of many workers resemble those of entrepreneurs. Understanding role of entrepreneurship education has also changed. When in the middle of the last century emphasis lied with theoretical management related knowledge, then by today the focus has shifted more towards the development of personal qualities (Gibb 2005).

The core of enterprise is an entrepreneurial person and thus teaching entrepreneurship is closely linked with developing entrepreneurial spirit. Entrepreneurship, characterised by the ability to initiate, activeness, independence and innovativeness in personal, professional and social life, motivation and persistence in pursuing both personal and professional goals, is – according to the European Parliament – one of the eight key competences of life-long learning needed in knowledge based society (EC 2005).

An important goal of entrepreneurship education is to increase employment. It is especially topical today with alarming unemployment rates in Estonia and the entire EU. The global economic crisis clearly demonstrated the benefits of good business management skills, entrepreneurial spirit and courage, the ability to see and make good use of the existing opportunities. The European Commission knows it too: it opted for a wise, sustainable and inclusive strategy for economic growth to survive the economic recession. Europe needs to take full advantage of its workforce potential to cope with ageing population and increasing global competition. People need to be able to acquire new skills to swiftly adapt to new conditions and possible career changes. The EU's strategic documents repeatedly emphasise the importance of teaching business management skills and entrepreneurship. And it needs to start at an early age. When pupils acquire a positive attitude towards enterprise, business management skills and entrepreneurial spirit in school, they are more likely to become entrepreneurs after their studies. However, new enterprises and jobs are not the only benefits of entrepreneurship education. Entrepreneurship is a crucial quality for anyone as it makes people more creative and confident in their pursuits and helps them to be more successful in the labour market (EC 2010a).

Relying on the recommendations of the European Parliament and Council of the EU to the member states according to which the strategy of life-long learning should include access to key competences for all citizens, the Estonian Minister of Education and Research (MER) and Minister of Economic Affairs and Communication (MEAC) signed a joint declaration titled "On the development of entrepreneurial spirit and entrepreneurship education in the Estonian education system" in October 2007, agreeing that both ministries will be involved in

developing the respective plan. In October 2008 the Entrepreneurship Education Think Tank was created to the Estonian Chamber of Commerce and Industry that started working on a programme for teaching enterprise and entrepreneurship in general education schools in Estonia. Developing entrepreneurship education in Estonian higher education institutions (non-economics programmes) is the responsibility of the entrepreneurship education working group created by the MEAC in spring 2009. In addition to compiling programmes for entrepreneurship education, the wider goal of both working groups is to foster entrepreneurial attitude on state, regional and individual level.

Since 2006 the national curricula of all specialities in Estonian vocational schools need to contain an obligatory module of entrepreneurship education (40 study hours). Entrepreneurship education was also introduced as an elective in the national curriculum for secondary school that entered into force in September 2010. Moreover, entrepreneurship is one of the recurring themes already in the basic school.

Several national and EU financed programmes for providing entrepreneurship education to adults have been launched. For example, regional development centres offer basic training for start-ups and free counselling to new entrepreneurs. Foundation Enterprise Estonia under MEAC offers funding for the continuing education of entrepreneurs, managers and employees. Foundations Innove and Archimedes under MER offer funding for the training and continuing education of entrepreneurship education teachers, compilation of study materials and participation in international collaboration networks. Several Estonian higher education institutions and vocational education centres, the Estonian Chamber of Commerce and Industry, the Estonian Unemployment Fund, training companies and many other organisations offer training courses on entrepreneurship education.

In the light of what has been said so far, we can say that teaching entrepreneurship and enterprise in Estonia has had quite a take-off. However, a national concept for entrepreneurship education that would encompass all education levels and economic sectors is still missing. Entrepreneurship education is often thought of as something general. It is forgotten that different target groups need different approaches. It is true that everybody needs general economic and business related knowledge, but different areas of specialisation have different needs. Specific, field-related entrepreneurial knowledge is what is often lacking. Differences can be quite big even within one sector. For example, the health care sector covers a range of professions: general practitioners and specialised doctors, nurses, midwives, dentists and orthodontist, chemists and pharmaceutists, leaders of health care organisations, administrative and support personnel, educators of health care professionals, medical statists, e-health specialists, providers of additional and alternative health care services, etc. A great part of professionals, e.g. doctors and nurses in hospitals, are employees and we tend to think that entrepreneurship skills are irrelevant for them. This, however, is a miscalculation, considering that the aim of entrepreneurship education is not only create new entrepreneurs but also increase people's entrepreneurial spirit and create a clear understanding of how economic processes take place in today's world. Initiative, independence and innovation together with adequate knowhow on the functioning of the surrounding environment help to succeed either as an entrepreneur or an employee.

Considering that there are several types of health care professionals depending on their work specifics, each subgroup should be approached differently when providing entrepreneurship education. First, we must find out the needs and expectations of each target

group and then determine the extent and methods of entrepreneurship education in order to reach the goals set in the best possible way.

Health care professionals and enterprise

Pursuant to the Health Care Services Organisation Act, family doctors providing general medical care are private owners and may act as sole-proprietors or found a business association for providing general medical care. According to the law, family doctors may provide the following services: general medical care, independently provided nursing aid, social services and health care education and research. Family doctors perform the following tasks: health promotion, prevention of diseases, medical inspection, individual health education, medical advice, immunisation, screening, diagnostics and treatment of illnesses, referral to active treatment and rehabilitation in collaboration with specialised doctors, nurses, midwives, social workers and local municipalities. Family doctors are also responsible for paper-work related to the provision of health care services. All family doctors need to work with at least one family nurse. (Koppel 2008)

Family nurses perform the following tasks: monitoring the mental and physical development of healthy infants and children and performing regular examinations; advising parents and families on child hygiene, care, physical activity, prevention of diseases and diet; advising patients on family planning and sexual health; monitoring normal pregnancy; advising pregnant women on diet and physical activity; preparing future moms and dads for labour and parenthood; monitoring the health of the elderly and advising them on health and age related issues; ordering and disposing of vaccines, immunisation, keeping track of immunisation plans; determining the needs for nursing aid and compiling nursing aid plans; providing out-patient and home nursing aid; waste disposal. (Koppel 2008)

So family health centres normally have family doctors as entrepreneurs and family nurses as employees. While family doctors as entrepreneurs are in compelling need of business management skills, family nurses also need to have an understanding of how a business works, as due to limited human resources family nurses sometimes need to fulfil the tasks of family doctors to keep the practice running smoothly.

Providers of out-patient specialised medical care can be either business associations or sole-proprietors. Specialised medical care is provided in health centres, hospitals' out-patient departments and private practices. In-patient care is provided in hospitals that operate according to private law. Although Estonian hospitals are owned by the public sector, their management style is that of the private sector. This has created a framework where hospitals are managed like networks or integrated service providers, i.e. they are real economic units where managers must ensure adherence to good medical practice as well as efficient economic activity. (Koppel 2008) This makes the work of hospital and health centre managers similar to entrepreneurs. The medical staff has contracts with the hospitals, which makes them employees.

The number of public health service (e.g. advice on cessation of smoking, pre- and post-pregnancy monitoring, medical services to young athletes) providers is limited. The National Institute for Health Development, responsible for implementing national public health services, does not perform all tasks itself. Instead it delegates certain tasks to non-profit

organisations (NPO), health service providers and private companies. Although NPO-s have generally played a positive role in promoting public health, they are rather inefficient due to lack of human and financial resources. (Koppel 2008) The health care sector needs more innovative business models that would enable to take services to their target groups more efficiently and thereby raise more capital from both public and private sector.

Another weak point is care and rehabilitation services. Several rehabilitation institutions are willing to develop and expand, but are obstructed by the small amount and low price of treatment cases, the Health Insurance Fund being the main buyer. In fact, both care and rehabilitation services have great potential in the private sector as demand for these services increases every year. (Aaviksoo 2010) The rehabilitation sector is also understaffed. There are many elderly doctors and not enough physiotherapists, psychologists and occupational therapists. It is thus a promising field for young professionals who in their studies should also think about acquiring business management skills.

Training of health care professionals

Several Estonian educational institutions train health care professionals. The Faculty of Medicine of the University of Tartu (FMTU) offers the following programmes: medicine, dentistry, pharmacy and specialised medicine (residency). The nominal study period is 6 years in medicine and 5 years in dentistry and pharmacy. Graduates of medicine and dentistry can become specialised doctors during residency or pursue a PhD. Residency lasts 3-5 years. Residents can choose from 33 specialised medicine and 2 dentistry programmes. Residency ends with an exam and those who pass will be certified as specialised medical doctors or dentists. Students who complete only the basic programme, can work as general practitioners on the responsibility of their employer but not as independent providers of health care services. They can also work in the public or pharmacy sector.

The pharmacy programme lasts for 5 years: 4.5 years of theoretical and practical studies in the university followed by a 6-month practice in retail pharmacies or hospitals under the supervision of the hospitals' pharmacy departments. Pharmacy graduates can also pursue a PhD. Pharmacists provide pharmacy services according to the Medicinal Products Act.

Two Estonian professional higher education institutions (Tartu Health Care College and Tallinn Health Care College) train nurses and midwives. After the basic programme, nurses and midwives can start working with providers of health care services or provide independent nursing services. It is also possible to specialise in four fields of nursing: primary nursing, clinical nursing, intensive care nursing and mental health nursing. The basic programme lasts for 3.5 years for nurses and 4.5 years for midwives. Specialisation takes one year. Graduates of the basic programme can pursue a Master's degree in the FMTU in nursing management or nursing pedagogy programme.

Health care colleges also offer the following professional higher education programmes: optometrist, pharmacist, health protection specialist, health promoter, radiology technician, physiotherapist, bio-analyst, dental technician, occupational therapist. In addition there are

vocational education programmes for care workers, emergency medicine technicians, child minders and masseuses.

In addition to nursing, FMTU offers Master's programmes in public health and biomedicine. Public health specialists can specialise in environmental health care, health care management, health promotion or epidemiology. Students with a Bachelor's degree or an equivalent education in medicine, biology, health sciences, social sciences or economy can pursue a Master's degree.

Master's programmes in biomedicine are for students who have obtained a Bachelor's degree or its equivalent in the University of Tartu (gene technology, biology, ecology or biota protection programme) or in Tallinn University of Technology (TUT) (gene technology, applied chemistry or biotechnology programme). Anybody holding a Bachelor's degree or its equivalent in other biosciences or physical natural sciences is also welcome.

TUT also offers Master's programmes related to health care. In 2009 the health care technology programme was launched which, according to the university, is unique in the entire EU (Tartu Ülikool 2010). The aim of the programme is to provide e-health care technology specialists ready to work in health care institutions, familiar with the goals, structure and functionality of e-health IT applications, processing and standardisation, exchange and exploitation of medical information. The Master's programme is in English, with ca 30% of the students as well as some of the lecturers being foreigners. Candidates need to hold a Bachelor's degree or diploma by a professional higher education institution in one of the following programmes: IT, health science, social science, natural science, mathematics, economy, law or medicine. In September 2011 the PhD programme in health care technology will be launched.

TUT also offers a Master's programme in biomedicine technology which is an interdisciplinary field, combining engineering, biology and medicine. Graduates can pursue a PhD in chemistry or gene technology programmes with specialisation in biomedicine technology. Graduates are specialists familiar with medical technology, medicine and biology and collaborate with doctors in the use and development of medical technology for the diagnostics and treatment of diseases.

When Estonia joined the EU, the training of health care professionals was harmonised with EU legislation. Since then the admission quotas to institutions providing health care education have been raised to cope with the problem of ageing health care professionals and scarcity of workforce due to migration. Also, essential changes have been made in the infrastructure of institutions training health care professionals and in programmes for nurses, midwives and other specialists. Even though these changes have increased the number and quality of health care workers, health care institutions still lack specialists. Family nurses, health economists, public health and health informatics specialists are especially wanted. As the training of new specialists is a long-term process, it should start immediately. Unfortunately – and despite the fact that steps have been taken to better plan the training need of health care workers in recent years – there is no clear overview of how many and what kind of health care specialists are needed in the mid-term (Tartu Ülikool 2010).

Entrepreneurship education in health care programmes

A scrutiny of different health care programmes in the University of Tartu, Tallinn University of Technology and the two Health Care Colleges shows that almost all of them contain entrepreneurship education.

In the vocational education programmes (care worker, child minder, emergency medicine technician, masseuse) offered by the colleges the emphasis seems to be more on the foundations of economy rather than teaching entrepreneurship, as half of the programmes contain a subject called "Introduction to economics" and the other half "Introduction to economics and enterprise". Both subjects last one study week (40 study hours).

Tartu college has in most cases integrated entrepreneurship education in its professional higher education module "Vocational and personal development". The aim is to help students become self-managing team-players who understand the importance of life-long learning and professional development and take responsibility for personal development. Some of the learning outputs are an understanding of leadership, initiative and enterprise and professional skills to start working independently in the field of specialisation.
The list of subjects in the module does not usually contain a separate subject on enterprise. Once again emphasis seems to be on the foundations of economy as a number of programmes contain a subject called "Project management and introduction to economics".
An exception is the midwife programme – entrepreneurship education is clearly present in the subject "Enterprise and health care economics" in the module "Vocational orientation".

Tallinn Health Care College has a module for professional higher education programmes similar with Tartu college, titled "Personal and professional development". Students who complete the nursing programme will be familiar with management and able to implement their knowledge and skills. Unfortunately it does not say which subjects exactly contain entrepreneurship education.

Tallinn college also has one exception – the health promotion programme has a module "Professional development" which contains a subject called "Entrepreneurship education" (3 credit points). The aim of the subject is to give an overview of the foundations of economics and its relations to enterprise and introduce the main terms and problems related to enterprise and entrepreneurship. Students get familiar with the basic terms of economics and enterprise and with the ethical issues related to subjects involved in economic activity; they analyse different entrepreneurial situations and offer solutions; they will be able to have a discussion problems related to enterprise and write a simple business plan; they will acquire team-work skills.

In the University of Tartu, basic programmes almost lack entrepreneurship education. The topic is slightly touched upon in the last year subject for dentists called "Health care economics and organisation of health care" (3 credit points). The aim of the subject is to introduce the main terms in the field and their application in stomatology. Students that complete the subject know the structure of health and health care economics, understand the links between heath care policies and health care economics, are familiar with the basic macro

and micro economic terms such as GDP, consumer price index, public health costs, demand, supply, market relations, and know how to use them in health care management and health care policies.

After introductory lectures on the basics of health economics and health care in Estonia, studies take place in the form of seminars. Topics treated in seminars include market relations in health care and dental care, assessment of health technologies, cost accounting, pricing and elasticity, marketing and advertising in dental care, introduction to enterprise, business plan, planning of the provision of health care services and human resources.

Doctors have to take a subject called "Health care economics and organisation of health care" (6 credit points) in their last year but it touches upon entrepreneurship only indirectly. The aim of the subject is to give an overview of the organisation and functioning of medical aid and public health care in Estonia and of the main legislation regulating the provision of medical aid; to analyse ethical dilemmas characteristic of medical aid and health care and come up with solutions; introduce the basic health care economics terms, learn to assess health care technologies from the economic viewpoint and understand the nature of market relations in health care and the public sector.

Entrepreneurship education is completely missing in the basic pharmacy programme.

The situation is better with Master's programmes. All Master's programmes in the field of health care contain a subject on entrepreneurship education.

In the University of Tartu, Master's programmes in public health and nursing provide entrepreneurship education in a compulsory subject called "Health care economics" (3 credit points). The course views basic micro and macro economic terms and their application to health care management and health care policies, public spending on health care, demand and supply, nature of market relations in health care and economic assessment of health care technologies, pricing, budgeting, remuneration methods, business management and business plans.

The best Master's programme in terms of entrepreneurship education in the field of health care in Tartu is the biomedicine programme which contains an elective called "Bio-entrepreneurship" (3 credit points). The aim of the subject is to give an overview of business opportunities in the field of biotechnology, including practical tips on how to start a business, write a business plan, receive funding, protect intellectual property and recruit personnel. It also gives an overview of the biotechnology sector in Estonia and abroad. The subject is taught by several lecturers, including entrepreneurs with practical experience.

Tallinn University of Technology (TUT) has, in its health care technology Master's programme, integrated entrepreneurship education into the subject "Working in health care companies" (4 credit points) aiming to share knowledge on the working and operating principles of such companies. It views the management of health care systems, including quality, strategic and financial management; the role of marketing in health care, and

personnel management. Students also develop professional communication and servicing skills for working in health care institutions.

The bioinformatics Master's programme in TUT contains a compulsory subject called "Enterprise economics" (4 credit points). The subject aims to provide general knowledge on the most important aspects of enterprise economics and business planning in the Estonian legal framework and business environment. It focuses on basic terms, structures, rules, processes and methodology. Students learn to assess business opportunities and analyse the effect of business environment on the activity of a company and acquire practical skills for writing a business plan. Students need to come up with a business idea, present it to fellow students and convince them that the idea is applicable. They will also learn about starting a business and resolving related problems. The topics treated also include enterprise policy, support system for enterprise, the EU and Estonia's enterprise measures and services provided to enterprises by the support system.

As can be seen, entrepreneurship education in Master's programmes differs in terms of content, methods and extent.

None of the doctoral programmes contain entrepreneurship education as a separate topic. However, PhD students in the field of health care can participate in respective elective and optional courses.

Conclusions and further research

In conclusion it can be said that entrepreneurship education has an important role in the development of Estonia's health care system and economy in general. Efficient entrepreneurship education helps to create new enterprises and jobs in the health care sector, and to satisfy the ever-growing need for health care services and products both in the domestic and external market.

The health care sector is very knowledge intensive. Thus developing entrepreneurship education in health care fully agrees with Estonia's concept of a knowledge based economy. In order to achieve it, Estonian health care experts need to pay more attention to applied research and see to it that innovative research results are speedily applied in enterprise. A better understanding of the nature and processes of enterprise by scholars would also help to intensify their collaboration with entrepreneurs.

We need to let go of the archaic way of thinking according to which the health care sector as a public service provider is not connected to the business world and thus knowledge about enterprise is not something that most health care specialists would need in their daily work. Considering the ongoing social developments it is clear that if Estonia is to ensure a sustainable health care system, it needs to direct more private resources into funding the health care system in the near future. The structure and legal framework of the health care system, relatively modern and high-tech equipment in health care institutions, skilled health care professionals and the progress made so far in health care science are a good starting point for increasing the role of enterprise in Estonia's health care sector.

The Ministry of Economic Affairs and Communication and the Ministry of Education and Research have agreed that, in the coming years, all higher education institutions need to introduce entrepreneurship education as an elective in the non-economics programmes. The action plan for entrepreneurship education 2010-2013 by the working group of the MEAC focuses on the development of the content and quality of entrepreneurship education and ensuring its wider accessibility and integration into different areas of specialisation. For the best possible results, all relevant organisations need to collaborate. Theory and practice need equal attention. More external competence needs to be used in developing and teaching entrepreneurship education and in field-specific research and development. We also need to tap on the local scientific potential by linking research results with practical forms of entrepreneurship education. It is equally important that economics and non-economics programmes become more integrated as concerns entrepreneurship education, e.g. joint seminars and extra-curricular activities. (Majandus- ja Kommunikatsiooniministeerium 2009)

Generally speaking, there is a clear and recognised need to introduce entrepreneurship education in all fields of specialisation, including health care. The state has provided guidelines for doing it. The question is if and how these guidelines are followed in the training of health care professionals. Do educators in the health care sector really understand the needs and opportunities related to enterprise or are they just following orders when they offer entrepreneurship education? It is important that the few resources we have will not be spent uselessly and educational institutions offer high-quality and efficient entrepreneurship education in their health care programmes. As it is still early days for entrepreneurship education, we need to find out if what has been done and will be done is relevant and in compliance with the needs of the health care sector, bearing in mind future development scenarios. We need to survey the attitudes of health care students towards entrepreneurship education, their motivation and whether they find entrepreneurship education to be beneficial for them even if they do not intend to become entrepreneurs. Are students satisfied with present entrepreneurship education, its content and quality of teaching? What are the peculiarities and specific needs of entrepreneurship education in different fields of specialisation? How is the provision of entrepreneurship education organised in different higher education institutions? What do the leaders of these institutions think of entrepreneurship education? How are entrepreneurship education programmes complied and what is the background of lecturers? Which teaching methods are used? Is the subject presented systematically and integrally?

The author of this article is determined to find answers to these questions to facilitate the process of improving entrepreneurship education provided to students in various fields of health care in Estonia and, by doing so, also help to increase the role of enterprise in Estonia's health care sector.

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